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ABSTRACT

A study hypothesized that pedagogical beliefs, as well as method course experience, would be important and related influences on how preservice teachers used portfolios. During a year-long study, 20 elementary education majors were followed as they moved through methods courses into student teaching and their first year as classroom teachers. Informal surveys about portfolios and a motivational survey for teachers were completed by the subjects early in the study and at 2 to 3 months after the completion of student teaching. Use of portfolios in teaching methods courses seemed to elicit the development of professional portfolios students completed of their own work, but it did not appear to influence these student teachers to ask their students for portfolios, a behavior that teacher educators thought they were modeling. Findings suggest that teacher educators must help preservice teachers make explicit links among their coursework, their clinical experiences, and their pedagogical beliefs to build effective understanding and use of portfolios. Students should be asked to reflect on the types and uses of portfolios. The plans these student teachers made for using portfolios were based on what they observed in their clinical settings, but in these settings they were not seeing much portfolio use. An appendix presents some sample survey items. (Contains 2 tables, 1 figure, and 35 references.) (SLD)

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Preservice Teachers' Use of Portfolios: Process Versus Product

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Portfolios have emerged as common instructional tools and forms of evaluation, but educators do not share a common definition or method for using portfolios. The use of student portfolios has grown out of educational reforms that call for more authentic schoolwork and assessments. Although the use of students' portfolios as evaluation tools has been debated, many teachers, school districts, and states use them as informal and formal assessments (Case, 1994; Herman & Winters, 1994; Valencia, 1990). Similarly, the use of professional portfolios has become common practice for many preservice teachers on the job market, and for educators as a way to document their professional development (Adams, 1995; Barton & Collins, 1993; Bouas, Bush, & Fero, 1994; Cole, 1992; Krause, 1996; Ryan & Kuhs, 1993; Simmons, 1995; Tierney, 1993; Touzel, 1993; Vavrus and Collins, 1991). Teacher portfolios have been promoted as a way to measure preservice teacher knowledge and growth, even for purposes of certification (California Commission of Teacher Credentialing, 1992; Dollase, 1996; Stahle & Mitchell, 1993; Wichita State University, 1993; Wolf, 1996).

A central theme in the debates on portfolios, and a distinguishing characteristic of their use, is whether they are used as "process" or "product" in learning and teaching. In spite of the multiple definitions, purposes, and uses of portfolios, there is agreement that preservice teachers need to learn how to use portfolios for their professional development and in their classroom instruction. We hypothesized that pedagogical beliefs as well as their method course experiences and clinical experiences would be important and related influences on how preservice teachers used portfolios.

Conceptual Framework

Goal theory. An achievement goal perspective has become popular for explaining students' efficacy, strategy choice, and learning outcomes, and we adopted this perspective in this study. Mastery goals and performance goals are two general types of achievement goals (Ames, 1992; see also Dweck, 1986; Nicholls, 1989). Students with mastery goals focus on learning new skills, understanding, and making progress. They are interested in improvement, and they report using strategies to learn from their mistakes and monitor personal growth. This goal orientation appeared to support the concept of a portfolio as a "work in progress." In contrast, performance-oriented students focus more on how performance reflects on their ability. These students ask themselves if they are scoring above their peers. They focus more on the "product" than on the "process." This goal orientation appeared to support a portfolio as a "showcase" or final product.

An achievement goal framework also has been used to describe classroom contexts and teachers' approaches to instruction (Ames, 1992; Ames & Archer, 1990; Blumenfeld, 1992). However, little research has focused on teacher development of these goals and their relation to practice. If new teachers are expected to adopt a combination of product- and process-oriented methods, then they need to understand how their pedagogical beliefs may support, or contradict, these methods in guiding their instructional decision-making and evaluation.

Teacher development. Understanding the personal foundation of preservice teachers, while not a new issue in teacher education (Combs, 1965; Lortie, 1975), has gained in importance as contructivism has emerged in teacher education (Weinstein, 1990). Teacher educators have become interested in preparing reflective teachers (Schon, 1983). Becoming a reflective practitioner builds upon the development of self-understanding in preservice teachers (Bullough & Stokes, 1994). Teacher educators want to influence thoughtful growth and change in their students, building upon existing beliefs, reinforcing and modifying as appropriate (Kagan, 1992). Learning involves both exposure to new information and experiences and the personal discovery of what it means (Combs, 1982).

Background

Five years ago, faculty in the Education Department of Elmhurst College recommended that student teachers develop a portfolio to assist in their job search process. As recent graduates returned to a student teaching seminar to share job search and professional experiences, they motivated current student teachers to develop portfolios. Based on these positive experiences, faculty extended the idea of portfolios to students at all phases of the teacher education program. We recommended that students begin a portfolio in their first program courses and add to it each semester to document their experiences, their learning, and their growth and development as future teachers (Bullough, Knowles, & Crow, 1992; Veeman, 1984).

We also recommended that this portfolio be shared with course instructors, advisors, and clinical experience teachers and administrators in the Satellite Program (Tusin, 1993). This collaborative clinical experience program links a student in an entry level education course to a mentor teacher in a Satellite school. The mentor works with the student for some clinical experiences and student teaching, while also helping the student gain a variety of other clinical experiences throughout the school and district. Thus, students were encouraged to add to their portfolios through various course assignments and clinical experiences to become aware of their growth, what they still needed to learn, and their role in the process. Satellite mentor teachers and faculty expressed the value as they

better understood the experiences a student had and experiences still needed in the process of becoming a teacher. The portfolio helped students, faculty, the Satellite teachers recognize the integration of clinical experiences, coursework, and pedagogical beliefs in the teacher education program.

More recently, we have began requiring portfolios in various courses to model portfolio practices and for organizing professional materials. We assumed that making portfolios an integral part of our elementary education program would model for our students the multiple processes and uses for portfolios. Requiring portfolios became a significant change from the past practice of recommending them. The purpose of this study was to more clearly understand the impact of these changes on our students.

Methods

During this year-long study, we followed 20 elementary education majors as they moved through methods courses into student teaching and their first year as classroom teachers. Two groups of preservice teachers were included in this study: students completing their final methods coursework (within 1 year of student teaching; Pre-Student Teachers) and students completing their student teaching (Student Teachers).

Participants. Of the 10 Student Teachers, 9 were female, and 3 had previous bachelors' degrees. Five Student Teachers were non-traditional students, students returning to school after previous careers. All 10 of the Pre-Student Teachers were female, one had earned a bachelor's degree previously, and 3 were non-traditional students.

Procedure. During the Spring of 1995 we collected informal surveys about portfolios and a motivational survey designed for teachers, the PALS (Patterns of Adaptive Learning Survey; Midgley, Maehr, & Urdan, 1993). Samples from both surveys are attached (see Appendix A). In this paper we report two phases of this study: (a) phase one involved completing the PALS and the survey about portfolios before the Student Teachers began their full-time placements, and (b) phase two involved a replication of the PALS and a follow-up survey to assess current experiences with portfolios two to three months after the Student Teachers had completed student teaching. Currently, we are completing the third, and final, phase by interviewing all 20 participants one year after collecting the phase one data.

Results

We have organized our findings around three variables: preservice teachers' experiences with portfolios in their methods courses, their clinical experiences, and their pedagogical beliefs, which we believed would be related to their application of these experiences.

Preservice Teachers' Experience with Portfolios

Table 1 outlines the various levels of exposure to portfolios participants reported prior to the study beginning.

Table 1. Participants' Prior Experiences with Portfolios

	Personal[a]	Methods Courses	Clinical Experiences
Student Teachers (n=10)	80%	50%	90%
Pre-Student Teachers (n=10)	10%	100%	30%
Total	45%	75%	60%

[a]Includes the development of a professional portfolio or use of a portfolio outside of their careers in education (e.g., in high school, as parents, as models, artists, etc.)

The general survey results from phase one indicated:

1. Preservice teachers viewed professional portfolios as a product of student teaching because that is when they are needed for the job market. Six Pre-student Teachers and one Student Teacher specifically mentioned that they were waiting for specific instructions on how to start a professional portfolio. Only one Pre-student Teacher had started to create a portfolio, and two of the Student Teachers had not begun a portfolio.

2. Student Teachers had more experience with portfolios personally (i.e., in beginning to create their professional ones), $\chi^2 = 11.02$, $df = 1$, $p < .00$, and in clinical experiences prior to student teaching, $\chi^2 = 8.20$, $df = 1$, $p < .00$. This finding reflects their more extensive clinical experiences and their more immediate concerns of the job search. Pre-student Teachers had more experience with portfolios in methods courses, $\chi^2 = 8.63$, $df = 1$, $p < .00$, which, in part, reflects an active integration of portfolios in methods coursework during the 94-95 academic year.

3. When reflecting on how their portfolios would change, the majority (70%) of the preservice teachers described having "more" or "bigger" portfolios. Only six participants (3 Student Teachers and 3 Pre-student Teachers) described their portfolios as changing qualitatively (i.e., some items being removed, others being added to demonstrate their growth as a teacher).

During phase two (after half of the participants had completed student teaching), we asked specifically about experiences with student portfolios, professional portfolios, and changes since the first phase (see Appendix A). We have organized the findings by the two types of portfolio use: student portfolios and professional portfolios.

Student portfolios. Not surprisingly, the Student Teachers reported having gained more experience with portfolios. However, only half of the Student Teachers reported

observing portfolios. Interestingly, they described the portfolios they observed as products, which they found outside of their mentors' classrooms:

- "sixth grade language-arts-all writing assignments...showed their best work"
- "a third grade class across the hallway used portfolios as a work in progress ...[at] the end of the year [they celebrated] with a display of portfolios for parents"
- "in a classroom visit"
- "just recently observed"
- "portfolio night at the [student] teacher's school...a great experience for parents and students"

The only Pre-student Teacher to observe student portfolio use experienced it personally as a parent: "[My] son's portfolio -- great example of progress for the whole school year."

Although only one-fourth of the participants had experienced student portfolio use in their clinicals, all the participants reported plans to use them in their classrooms. The ways in which they planned to use portfolios were varied: as student writing projects, for a student's overall growth and progress, for parent conferences, as a form of student assessment, as examples of a student's best work, for displaying great work, for monitoring the strengths and weaknesses in student work, for sharing with classmates, as an organizational tool, as a guide for teacher, as an alternate form of evaluation, and as a tool for students to evaluate their own materials. We saw combinations of process and product in their plans for portfolios, but at the same time, we saw a gap in their experience with using portfolios with students.

Professional portfolios. In creating and using portfolios professionally, participants reported an overall gain in experience. All the participants, except for one, reported having a professional portfolio. Note that for all of the Pre-student Teachers this is at least one semester before they enter their professional coursework for student teaching, the same coursework for which they had earlier reported "waiting for someone to tell them what to do." Two questions on the second survey illustrated these changes in the participants' perceived uses of and experiences with their professional portfolios:

Have you added or removed anything from your professional portfolio since April of 1995? If yes, please, describe?

Four of the newly certified teachers and three of the Pre-Student Teachers, who had just begun to develop a professional portfolio, had modified their portfolios during the semester or semester break. Their examples of modifications included the addition of items such as: photographs, teaching certificates, recommendation letters, resumes, transcripts,

evaluations, Honor Society certificates, Dean's List letters, workshop or seminar certificates, and student written papers.

Have you shared your professional portfolio with anyone since April of 1995?

All but one of the Student Teachers (now graduates) reported sharing their portfolios and two Pre-student Teachers reported having shared their portfolios. Some of the portfolios were shared on interviews, among colleagues, and with friends and family members. The majority of participants felt that portfolios were extremely effective for organizing and sharing their professional accomplishments with others.

Motivational Survey Results

Although the PALS subscales have proven reliable for other researchers (Midgley, Maehr, & Urdan, 1993), with this sample of preservice teachers, some items within each subscale were negatively correlated at a statistically significant level. We initially planned to omit these items to improve the survey's psychometric properties, but then realized that our participants may be reflecting their inexperience by reporting seemingly contradictory perspectives. Therefore, we focused our use of the PALS on the pedagogical beliefs subscale (see Appendix A) to eliminate the possibility that preservice teachers might have difficulty projecting their instructional and motivational strategies. The pedagogical beliefs subscales were the most consistent . Each subscale (process- and product-based beliefs) had only one negative inter-item correlation that was statistically significant.

A repeated measures analyses of variance (ANOVA) indicated that there were no differences between the two groups of preservice teachers (see Table 2) during phase one or phase two. Furthermore, the preservice teachers' ratings of their pedagogical beliefs did not change over that time period ($F_{performance} = .11$, $p < .79$, $MSe = .04$; $F_{process} = .05$, $p < .82$, $MSe = .00$). Thus, beliefs about pedagogical practices appeared to be fairly stable and did not differentiate the two groups.

Table 2. Analysis of Variance for Student Teachers (n=9) and Pre-Student Teachers (n=9) on Patterns of Adaptive Learning Scale Pedagogical Beliefs Subscales

	Group				Analysis of Variance		
	Student Teachers		Pre-Student Teachers				
	M	SD	M	SD	F	p	MSe
Process							
Spring	3.97	0.09	3.98	0.13	.11	0.73	.01
Fall	3.92	0.15	3.98	0.17			
Product							
Spring	2.48	0.51	2.51	0.13	.14	0.70	.05
Fall	2.50	0.37	2.61	0.28			

PALS means are based on a rating scale of 1 to 5.
df = 1, 32

On the other hand, within this small group of preservice teachers, we found statistically significant differences in how they "weighted" their beliefs about process- versus product-oriented approaches to teaching. We compared these individual differences from the pedagogical belief subscales to their definitions and projected uses of portfolios and their experiences with portfolios. We used the first sampling of the PALS pedagogical belief subscales because it corresponded with the initial survey about portfolio use knowledge and practice.

Descriptive Cases

Initially, we attempted to sort the preservice teachers' survey responses into qualitatively different categories for comparison with their motivational survey results. Attaining reliable agreement in this type of Q-sort proved to be problematic due to the complexity of the responses. For example, descriptions of portfolios were sometimes very uni-dimensional (e.g., "a show case," "a collection," "an assessment tool"), but they were more often multi-dimensional (e.g., "a collection with a purpose," "an assessment tool for showing growth and for sharing with parents").

Therefore, we took the preservice teacher's PALS pedagogical beliefs subscales (performance-focused and process-focused), and we examined six descriptive cases. These cases represent a Student Teacher and a Pre-student Teacher who were (a) closest to the group mean on both subscales, (b) the most product-oriented, and (c) the most process-oriented (see Figure 1). Thus, we compared their pedagogical beliefs about teacher practices (process- versus product-focused) with their knowledge of and experience with portfolios in the classroom.

For simplicity, we present a brief background for each case student, and then her responses to the following 5 questions, which we believe represent her experiences, knowledge, and pedagogical beliefs:

1. Describe what the term "portfolio" means to you.
2. Describe all the different ways you have been exposed to portfolios.
3. How do you think you will use portfolios in your classroom?
4. Do you have a professional portfolio? Why? or Why not?
5. What do you think your professional portfolio will look like 5 years from now?

The "average" perspective on pedagogical beliefs and portfolios. The group average on the pedagogical belief subscales represented an uncorrelated relationship between process- and product-oriented views toward teaching. While preservice teachers

endorsed process beliefs as being "true" (Process Mean = 3.98, SD = 0.33), they endorsed product beliefs as being "a little true" (Product Mean = 2.44, SD = 0.55). The cases of Amanda S. and Amy P. illustrate this perspective, and are representative of approximately half of the preservice teachers in this study (12 of 20). Three preservice teachers reported a similar pattern between process and product, but their process means were just below 1 standard deviation (all three means = 3.63). We considered these reports to be more typical of an "average" student than the other two orientations. [Note. "A" names indicate cases representative of the group "average," and the last initial indicates "S"tudent teacher or "P"re-student teacher.]

Amanda S. entered student teaching with 338 clinical hours logged. She participated in the Satellite Program and student taught with a mentor in a Satellite School. Amanda did not take a methods course in which portfolios were modeled or in which a professional portfolio was required.

1. Describe what the term "portfolio" means to you.

Amanda S.: "The term 'portfolio' means a collection of work you have done that is exemplary and tells about who you are and what you believe to be important."

2. Describe all the different ways you have been exposed to portfolios.

Amanda S.: "In a classroom other than the class I am student teaching in (5th grade)." and "My own professional portfolio."

3. How do you think you will use portfolios in your classroom?

Amanda S.: I believe I will use portfolios for students' chosen work. I think the portfolio shows who a person is and what they value. I believe the student should evaluate their work and make the choice as to their best work. That is what we would do as adults in real life situations and that is what students are being prepared for."

4. Do you have a professional portfolio? Why? or Why not?

Amanda S.: "I have a professional portfolio in which I have included samples of my work, projects I have done with children, lesson plans, and supplementary materials [that] I feel are important to my philosophy. It shows who I am and what I believe in."

5. What do you think your professional portfolio will look like 5 years from now?

Amanda S.: "I think I will have more examples of students' writing projects [that] I have developed, more professional seminars, organizations I participate in."

Amanda illustrates a typical stance on portfolios by describing them as unique to the individual and a summation of growth; some process and some product, but more qualitative than quantitative.

Amy was a semester away from student teaching and was participating in two methods courses that modeled the use of portfolios. Amy was unique in that she also had created two portfolios (i.e., collections of teaching ideas) in other methods courses, exposing her first-hand to the multiple definitions of the term. She had approximately 60 hours of clinical experiences logged in a variety of classroom settings at the time she participated in this study.

1. Describe what the term "portfolio" means to you.

Amy P.: "Portfolio means a notebook of several pieces of work, certificates that I want to show off. A portfolio to me means to keep changing, and to keep updating and adding new work. It is a 'show off' of accomplishments and ideas."

2. Describe all the different ways you have been exposed to portfolios.

Amy P.: "In a second grade classroom"
"Reading methods class"
"Math methods class"
"Social studies methods class"
"Art Education methods class"

3. How do you think you will use portfolios in your classroom?

Amy P.: I will use them as a way of looking at a progression of work. Kids can evaluate themselves on why they think certain papers aren't their best work, and how they can improve. I will also give the students choices about their work."

4. Do you have a professional portfolio? Why? or Why not?

Amy P.: "I don't have anything put together, just ideas of what I want to do. I plan on putting it completely together during student teaching."

5. What do you think your professional portfolio will look like 5 years from now?

Amy P.: "It will be filled with new certificates of workshops, evaluations, and ideas [from] student teaching."

Like Amanda, Amy described both the "showcase" attributes and the more learning-oriented characteristics of portfolios as self-assessment tools. They both viewed portfolios as evolving. Amanda represented the viewpoint that the portfolio's development would reflect the person creating the portfolio, whereas Amy represented an alternative perspective in that the portfolio represented the "best work."

Thus, within these representative cases, we illustrated the diversity among the preservice teachers. Their knowledge and experiences about portfolios were complex, mixtures of process and product. This complexity is what made sorting their responses

qualitatively so difficult. Does the common pattern of rating process pedagogical beliefs slightly higher than product-based pedagogical beliefs represent the most workable relationship? Does it offer a foundation for using the extrinsic rewards and goals of portfolios, while primarily seeing them as tools for learning and self-evaluation? Or is this pattern a reflection of preservice teachers' dilemmas about their evolving pedagogy?

The "product" perspective on pedagogical beliefs and portfolios. Four preservice teachers reported a product-orientation by endorsing performance beliefs in their teaching more than their peers, and endorsing process beliefs similar to or less than their peers. Three of the four possible cases were Student Teachers, Gail represents the "median" for the student teachers in this group. However, the cases of Gail S. and Gwen P. illustrate two different patterns we found within this perspective. Although Gail and Gwen reported more product-focused beliefs than their peers, Gail's process-oriented beliefs were similar to the "average," whereas Gwen endorsed process-beliefs significantly less than average. [Note. "G" names indicate cases representative of the a final product, or "Grade" focus.]

Gail began student teaching with 288 of clinical hours. She did not participate in the methods courses that modeled portfolio use or required them, but she reported a variety of experiences with portfolios, including exposure to portfolios outside of the context of education.

1. Describe what the term "portfolio" means to you.

Gail S.: "A portfolio means me, or something that represents the best of an individual. It could be a folder, box, file, or binder full of different works, experiences, writings, or pictures combined in one for someone to have - to show someone or keep for themselves - sort of like a photo album or scrapbook, but more professional."

2. Describe all the different ways you have been exposed to portfolios.

Gail S.: "College courses"
"Observation in different classes."
"Business"
"School"
"Modeling"

3. How do you think you will use portfolios in your classroom?

Gail S.: "I would use portfolios as tools in my classroom for evaluation and assessment tools for each individual child. I will also use them to show parents their child's performance. I will use them as "show and tell." Children can also show and explain their portfolios to their classmates and peers. They will be used as teacher-directed and as [individual] accomplishments."

4. Do you have a professional portfolio? Why? or Why not?

Gail S.: "I have started one, but [I] have not yet finished it. I started mine because I have a lot to say and show people what I have accomplished. I am also very proud of it. I believe that I have something to show rather than just say I did it."

5. What do you think your professional portfolio will look like 5 years from now?

Gail S.: "I believe it will be LARGE [emphasis in original] - but I also believe newer things will replace old, but as long as I keep improving and learning I will keep all my great accomplishments in it. It will also be an evaluation, maybe even a picture of me and my heart in teaching and learning."

In sum, Gail appears to view the portfolio as an evolving collection of best work. She also mentions how much it reflects her and her accomplishments and indicates that she wants her students to enjoy the satisfaction of this "show and tell" of successes. In her responses, we saw both process and product views of portfolios, like Amy and Amanda. However, Gail appeared to reflect her more product-oriented pedagogical beliefs, she does not talk about self-evaluation or choice as Amy and Amanda did, but about teacher-directed use and feeling proud of the finished portfolio when sharing it with others.

Gwen P. was two semesters away from student teaching, and had taken two methods courses, one which modeled portfolios and one which used them as collections. At the time of the first survey, she was beginning a third methods course that modeled portfolios. Gwen had logged 89 hours of clinical experiences in a variety of settings, but all her experiences with portfolios were in education courses.

1. Describe what the term "portfolio" means to you.

Gwen P.: "[A] portfolio is a place to reflect your best work and organization skills."

2. Describe all the different ways you have been exposed to portfolios.

Gwen P.: "Education social studies"
"Education science"

3. How do you think you will use portfolios in your classroom?

Gwen P.: "A portfolio will help me to organize my units and lesson plans; along with projects. It is a great way to save lessons which really went over well with the students. It will also help my staff to evaluate my progress."

4. Do you have a professional portfolio? Why? or Why not?

Gwen P.: [Yes] "I plan on presenting a portfolio at my interviews."

5. What do you think your professional portfolio will look like 5 years from now?

Gwen P.: "It will look like a display of my progress and performance."

Gwen's responses surprised us because she only defined and reflected on professional portfolio use and did not mention the possibility of students using them, even when asked about how she would use them in her classroom. "Portfolio" for Gwen seemed to mean an organizational tool for professional materials and accomplishments. Both Gail's and Gwen's cases caused us to reflect on the implications for teaching preservice teachers who place higher than average emphasis on the products of learning. Do they see portfolios as "a means to an end"? How would their perspectives fit with courses that required or formally evaluated their portfolios?

The "process" perspective on pedagogical beliefs and portfolios. Only three preservice teachers endorsed process goals more than their peers, and product goals similar to or less than their peers. The cases of Laura S. and Lisa P. illustrate this greater than average emphasis on process over product. As in the "product" perspective, there appeared to be two patterns with high process ratings. Lisa P. reported the highest ratings of process-based pedagogical beliefs and an average rating of product-based beliefs. However, Laura, reported significantly higher process-focused beliefs and significantly lower product-focused beliefs, as did the third preservice teacher in this category. [Note. "L" names indicate cases representative of a "**L**earning," or progress focus.]

Laura S. began student teaching with over 300 clinical hours. She had completed her methods coursework before the modeling of portfolios began or were required, but topic was a familiar one. Unlike her peers, she reported having observed portfolios being used in several clinical settings. In addition, Laura's college supervisor required student teachers to create a portfolio, and Laura's cooperating teacher was encouraged to help her develop one.

1. Describe what the term "portfolio" means to you.

Laura S.: "Portfolio means a lot to me. It is a tool used to express and show growth and improvement. [emphasis in original] It is a way to show progress. In a classroom, it is a great way to evaluate children's progress and growth. Children should be able to choose what goes into their portfolio."

2. Describe all the different ways you have been exposed to portfolios.

Laura S.: "Portfolio workshop [reading methods]"
"Made a math portfolio for math [methods]"
"Portfolio in a 1st grade classroom"
"Portfolio in a 5th grade classroom"
"Portfolio in a 3rd grade classroom"

"My professional portfolio"

3. How do you think you will use portfolios in your classroom?

Laura S.: "I would definitely use portfolios to evaluate children's growth and progress throughout the year. The children [emphasis in original] and the teacher are responsible for the work that is chosen to go in the portfolio. The children choose what they feel represents their best. The teacher may choose something that they feel the child overlooked and will place it in their portfolio. The teacher does not base her grades only on tests. She uses the portfolio to measure their growth from quarter to quarter."

4. Do you have a professional portfolio? Why? or Why not?

Laura S.: [Yes] "To show a perspective employer what I have to offer. To show him or her my growth [emphasis in original] as a teacher. To express with pictures experiences that I've had in the past."

5. What do you think your professional portfolio will look like 5 years from now?

Laura S.: "I'll have more experience, so therefore I'll have more information to share. More pictures, more recommendations, etc."

Laura's focus seemed unique in that she emphasized the growth, or portfolio process, in her responses. She also seemed more aware of the student portfolio as being as much for the child as for the teacher. Laura's understanding of and uses for portfolios appeared to stem from a wealth of experiences and from her beliefs that process is more important than product in teaching. Was there a reciprocal effect between her strong process-focused beliefs and her rich experiences, or did one influence the other?

Lisa P. was a year away from student teaching. Of the 6 cases, she had the least amount of clinical experiences (41 hours). She also was just beginning methods courses, and was enrolled in one course that had started to model portfolios. Lisa's experiences, and knowledge of portfolios appeared to be much lower than her peers.

1. Describe what the term "portfolio" means to you.

Lisa P.: "Portfolio means a collection of works, experiences, achievements, etc. collected together to act as a representation of the individual."

2. Describe all the different ways you have been exposed to portfolios.

Lisa P.: "I have only been exposed to portfolios in my social studies methods class."

3. How do you think you will use portfolios in your classroom?

Lisa P.: "I would use them to show the child and their parents how they have progressed through the year. For example, have the students do a certain writing throughout the year. This way the student will be able to see how they are progressing."

Interestingly, in all the other descriptive cases, preservice teachers built their responses to this question onto their responses to the previous question: "Describe your understanding of how portfolios are used in the classroom." Lisa did not. When describing her knowledge of classroom uses, she wrote, "I have no [emphasis in original] idea how portfolios are used in classroom[s]. There has been no information provided to me for my understanding." This was surprising to us because Lisa was participating in the Satellite Program and was working in a school district that had moved to portfolio assessment and no longer placed grades on report cards, but used annotations. She also was involved in a methods course that explicitly modeled characteristics of student portfolio use, but neither experience had helped her understand them sufficiently.

4. Do you have a professional portfolio? Why? or Why not?

Lisa P.: "I'm starting one at this point. I think that it is important for my career."

5. What do you think your professional portfolio will look like 5 years from now?

Lisa P.: "I hope it will be full of interesting projects that I have participated in; many achievements throughout the year."

Lisa's lack of knowledge about portfolios appeared to cause her to be tentative. She was the only preservice teacher in the second survey to qualify her potential use of portfolios with "might." Yet, Lisa was completing her pre-student teaching clinicals in a very progressive school district where portfolio use was common place. Why did she not know more about implementing them with students? Do her process-oriented pedagogical beliefs have any relationship to portfolio use when basic knowledge about portfolios is lacking? Did her process focus guide what she saw in her clinical experiences and what she had learned about portfolios?

Limitations

In this study of our own practice, we surveyed 20 of the approximately 250 elementary education students in our preservice teacher program. The small sample size and the voluntary nature of the study are limitations to our findings. In addition, our findings may be unique to this group or to students at this College (a small, private, liberal arts institution in the Midwest). However, we have learned a great deal about our preservice teachers' knowledge and uses of portfolios, and their pedagogical beliefs. The findings have important implications for our teacher education program and they stimulate many new questions about how we prepare teachers to meet the complex demands of the profession.

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Discussion & Implications

These findings suggest that teacher educators must help preservice teachers make explicit links among their coursework, their clinical experiences, and their pedagogical beliefs to build effective understanding and use of portfolios. Some students seem well-prepared to make these connections themselves, while others need guidance. In this study, we found that our use of portfolios in methods courses seemed to elicit the development of professional portfolios, but not experiences with or the use of student portfolios, which we thought we were modeling. Thus, within our professional courses, we need to model processes like portfolio development and have students reflect upon the process. We need to compare and contrast the "student portfolios" they develop in a methods course with the possibilities for student portfolios in their classrooms and with their professional portfolios. In sum, we need to ask preservice teachers to reflect upon all the different forms and purposes of portfolios, and to synthesize what is similar and what is different among their methods portfolios, students' portfolios, and professional portfolios.

We also found that preservice teachers' plans for using student portfolios were based on what they observed in their clinical settings. What they "saw" was what they planned to "do" as teachers. However, what they were "seeing" was minimal and they were not gaining experiences of participating in the portfolio process with students; they were seeing the products of portfolios. Therefore, we need to support preservice teachers' clinical experiences by helping direct their observations (e.g., providing a checklist of questions to ask, or characteristics to look for, or suggested activities). Bringing the clinical experiences into our methods courses also is important, given the gap between theory and practice (i.e., many teachers do not use portfolios in teaching or in their professional development). We should invite inservice teachers and students to share their portfolios with preservice teachers, describing the process of how they use them and what they learn from them.

Finally, we should help preservice teachers explicate their pedagogical beliefs and relate these to their current understandings to illustrate how these beliefs guide what they see in their clinical experiences and influence their teaching and their development as teachers. Teaching and learning are intertwined processes, and portfolios are intended to capture these processes and enhance them. We believe that preservice teachers may benefit the most by learning to apply both process and product beliefs. To develop a better understanding of the uses of portfolios and to apply this knowledge to the classroom, preservice teachers need to see a variety of outcomes of portfolio use: different types of portfolios, ways in which teachers organize portfolio materials, how teachers and students

share them with parents, etc. They also need to participate in the processes that help teachers and students learn from portfolios: how portfolios are used by teachers and students daily, portfolio conferences, portfolio visits, etc. Moreover, they need to understand how their pedagogical beliefs (including their internal consistency) enhance or detract from their understanding and use of portfolios.

Conclusion

We have gained several insights into how preservice teachers' perspectives, methods course experiences, and clinical experiences may contribute to their development as teachers in their beliefs and practices surrounding portfolio use. We also have gained valuable information about how changes in our teacher education program influence our students' use of portfolios and may influence their use in their careers and classrooms. This study is important because its theoretical framework is built upon three essential considerations. We assumed that to make these methods personally meaningful and an effective part of future teachers' practices, preservice teachers needed exposure to and experience with new methods, such as portfolios. We further assumed that their beliefs about their personal pedagogy would influence their beliefs about the method being implemented. While we have found evidence for these assumptions, we underestimated the complexity of these interactions and the uniqueness of each student. We also realized that what we thought we were teaching and modeling was not always what students were learning and perceiving.

As we further develop the use of portfolios within our teacher education program, we need to help students think about these methods and how they might use them. As Barton & Collins, 1993, foreshadowed "the first and most significant act of portfolio preparation is the decision on the purposes for the portfolio" (p. 203). Students who define a portfolio as a final product, may become teachers who use portfolios in different ways than teachers who define a portfolio as a process. Many of our students do strike a balance or see the multiple uses of portfolios. This balance seems necessary for preservice and inservice teachers to maximize the potential of portfolio use in the classroom and as a professional. Their experiences with portfolios in methods classes and in clinical experiences combine in unique ways with their pedagogical beliefs. Helping our students understand this interaction and the importance of all three components in their professional growth and understanding is essential. Helping them understand their personal beliefs and the role they play is especially vital.

Our findings also prompt us to evaluate new practices in our teacher education program. For example, requiring portfolios is a significant change from the past practice of

recommending them. We have used portfolios as both a process and a product, but the change to required portfolios may significantly increase the product concept of portfolios. Preservice teachers now receive portfolio grades as one part of a methods course grade. This evaluation seems to change their perceptions of portfolios. Whether this is a positive change remains unclear, and warrants further study.

We cannot assume preservice teachers see portfolios used in their clinical experiences and when they do, the classroom practices they observe strongly influence their ideas of their own future practices. We include clinical experience requirements with each education course and we have a strong collaborative clinical experience program, yet the link between teacher education theory and practice, at least concerning portfolios, is not strong. We must help our students understand that there are disparities between theory and practice. They must learn to work effectively in schools while also developing tools for change. Our influence on their portfolio practices appears to have been greater concerning their professional portfolios. Helping them recognize similarities between their professional portfolio experiences and classroom portfolios should be strengthened in our program.

Like their inservice mentor teachers, preservice teachers need opportunities to link their knowledge with practice. This may be especially important when they are learning to use methods, such as portfolios, that depart from traditional classroom practice (Viechnicki, Barbour, Shaklee, Rohrer, & Ambrose, 1993). As teacher educators, we have been impressed with and perplexed by the multiple ways our students approach nontraditional ideas in education. This study clearly helped us see the complexity of our students' thinking and the development of their professional practices. Our influence is clear, but not necessarily as we had thought it might occur. Teacher educators must plan carefully the inclusion of new practices and assessments, and be prepared for the individuality and complexity of student thinking as they integrate methods class knowledge, clinical experiences, and their own developing pedagogical beliefs.

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APPENDIX A
Sample Items from Surveys

General Survey Questions: Phase One

1. Describe what the term "portfolio" means to you. (Please do not "look up" the term in your textbooks, notes, or reference material.)
2. How important are "portfolios" in today's classrooms and for today's teachers?
3. Describe all the different ways you have been exposed to portfolios. (Please number your responses.)
4. Describe your understanding of how portfolios are used in the classroom?
5. How do you think you will use portfolios in your classroom?
6. Do you have a professional portfolio? YES NO Why? or Why not?
7. If you have a professional portfolio, briefly list its contents.
8. What do you think your professional portfolio will look like 5 years from now?

PALS Sample Items (Midgley, C., Maehr, M., & Urdan, T.,1993, *Manual: Patterns of adaptive learning scale*. Ann Arbor, MI: University of Michigan.)

Goals Expressed through Pedagogical Beliefs

Performance/Product:	Grades are a necessity; students have to have a realistic view of their ability.
	Parents should be told how their child is doing compared to others in the class.
	Contests between students are a useful way of increasing motivation.
Task/Process:	Students shouldn't worry abut failure.
	If it were up to me, I would grade students solely on effort.
	Students should be encouraged to take academic risks.

General Survey Questions: Phase Two

1. Describe any recent experiences (since April 1995) you have had with students using portfolios in the classroom.
2. Do you plan to use portfolios in your classroom? In what ways?
3. Do you have a professional portfolio? If yes, list the table of contents.
4. Have you added or removed anything from your professional portfolio since April of 1995? If yes, please, describe?
5. Have you shared your professional portfolio with anyone since April of 1995?

Figure 1
Preservice Teachers' Pedagogical Beliefs: Descriptive Cases